

A hypothesis on earthquakes and political power in Minoan Crete

Vincenzo La Rosa

Istituto di Archeologia, Università di Catania, Italy

Abstract

The seismic destruction of the first Minoan palace at Phaistos is preliminarily confirmed. The hypothesis is then proposed that a change in the relationships among the powers in the Messarà plain was also produced by the different capacity of the Phaistos centre to react to the 1700 B.C. seismic effects, as compared to that of Knossos. This trend is thought to have continued after the second earthquake of the middle(?) of the XVII century B.C., indirectly confirming Knossian leadership in the island's entire central region during the age of the second palaces.

Key words *seismic archaeology – Crete – Minoan civilization*

That seismic phenomena had been current in the various phases of Minoan civilization, had already been clear to the first excavators. The revealer of that civilization, Sir Evans, was on Crete on the occasion of the earthquake of June the 26th, 1926 (IX degree of the Mercalli scale), occupied with the restoration works (in reinforced concrete) of the Knossos Palace. He was, therefore, a helpless spectator of the collapse of a few structures that had just been consolidated; on that occasion he was said to have realized how the ancient and monumental buildings could have been ruined. Besides this anecdote, there is no doubt that the answer or the dominant groups' reaction to the seismic event is a historically important problem, quite common to areas and periods even far too distant among them. In a specific prehistoric context, the political consequences must have been of such a significance that the authorities had already put into practice systems of control over the territory and over the accumulation and redistribution of resources. The importance of the problem makes it worth

considering in prehistoric times (even though the evidence for this period is not certain). In considering such a question, the Minoan palaces constitute an exact datum-point since they were constructed at about the turn of the II millennium B.C. The palace at Phaistos is unique not only because of the ruins' conservation but also because of the vicinity of monumental centres such as Haghia Triada and Kommos. The effects of a single phenomenon can therefore be estimated at three spots, which can be used to define the interrelations of local political control in the Messarà plain, and its connections with other areas on the island.

Less than half the size of Knossos, the palace of Phaistos (fig. 1) is the best preserved as far as the first period's structures are concerned (the so-called protopalatial period). The new cycle of excavations under D. Levi and the Italian School of Archaeology in Athens since 1950, has brought to light a whole quarter of the first building, mainly used for storage, with ruins that in some cases exceed 6 m (fig. 2) in height. The excavator, working in a difficult context, perhaps without conclusive evidence, believed he could distinguish three architectonic phases in the complex (indicated as I, II

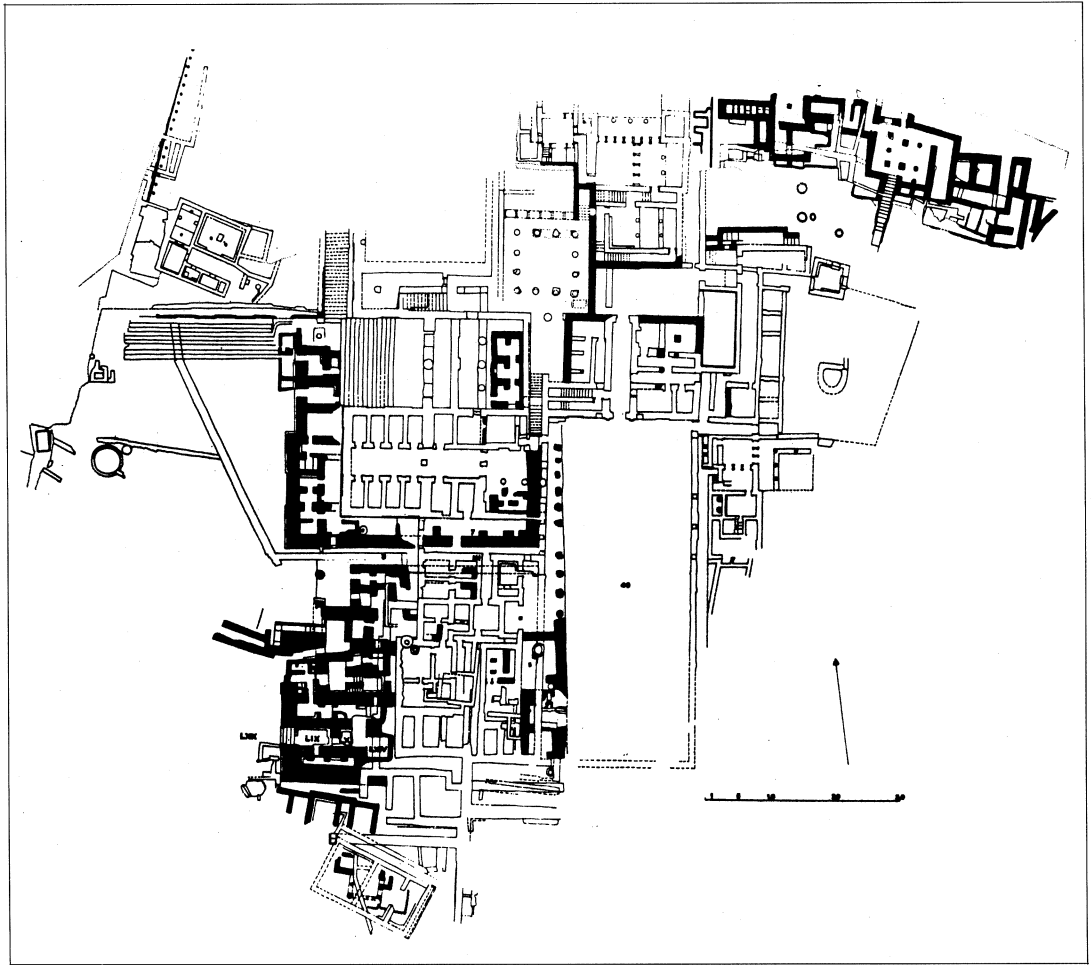


Fig. 1. The Phaistos palace planimetry (the Middle Minoan structures in black) (from Fiandra, 1980, pl. 29).

and III protopalatial), subdividing the I in *a* and *b* (fig. 3). The destruction at the end of each phase would have involved a levelling of the remaining structures and filling them up with a sort of concrete (what is locally called *astraki*), made mainly of lime, stones and clay (fig. 4). This operation would have allowed the builders to increase the height of the ruined walls and to reconstruct the previously existing building's planimetry with a minimum of vari-

ations. It was only the first phase of this reconstruction and additions that would not have caused the raising of the floor level. For Levi this architectonic succession was confirmed by the triple superimposition of paved levels both in the area of the so-called Theatral Court as well as in the ramp between this Court and the one immediately to the south of it. On the basis of the stratigraphy Levi proposed to associate a particular stylistic and chronological stage of



Fig. 2. The three levels of ruins belonging to rooms LIII and LV (in the background). To the right, concrete filling remains corresponding to the western limit of Court LXX (from Levi, *Festòs*, fig. 12; neg. 14630).

Kamare pottery to each single architectonic phase. The differences between phase *Ia* and *b* (which were unaccompanied by radical architectural changes) seemed to be sufficiently documented right from the beginning of the

excavation. In contrast, the distinction between the *Ib* and II phases turned out to be much less manifest, the last phase being very little represented, because, unlike what had happened after the destruction between *Ia* and *Ib*, the preliminary removal of the ruins would have eliminated the evidence of phase II. As far as the III protopalatial phase pottery is concerned, there was almost no documentation, since both the structures and the contexts had been largely removed by the constructors of the second palace. At the same time the stratigraphic situation at Knossos had led Levi to criticize Evans' phases with the *vis polemica* he knew so well, and to methodically avoid the use of the terminology proposed by Sir Arthur. Levi also suggested a marked lowering of the conventional chronologies (2000 B.C. instead of 3400 B.C. as far as the beginning of the Early Minoan period is concerned; 1850 B.C. instead of 2000 B.C. for the First Palaces' construction). The last phase of the palace at Phaistos (the so-called protopalatial III) corresponded, according to Levi, to the first phase of the Knossos second palace. Incidentally, a low chronology for the Middle Minoan age would now seem confirmed by the discoveries of Tell el-Dab'a in Egypt (Walberg).

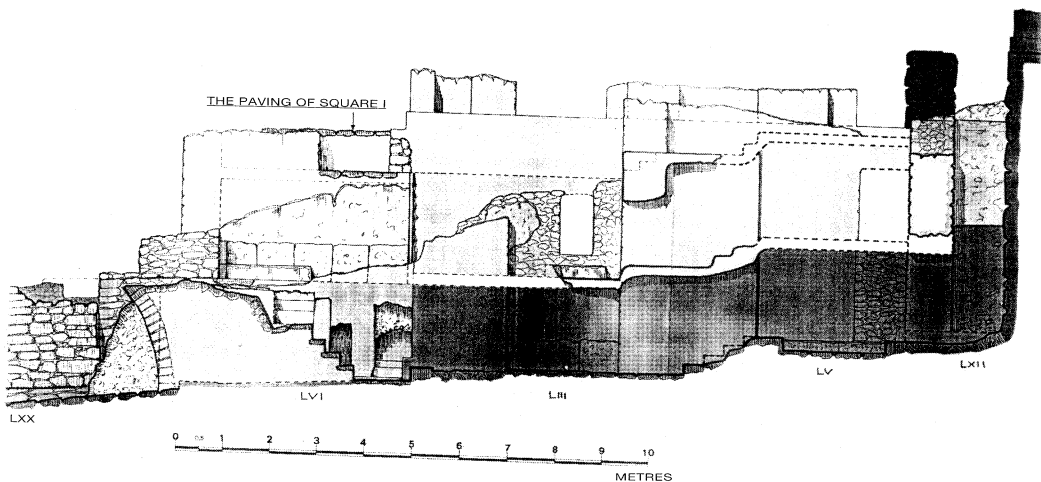


Fig. 3. E-W section through rooms LXII, LV, LIII, LVI and Court LXX (from Levi, *Festòs*, pl. L).



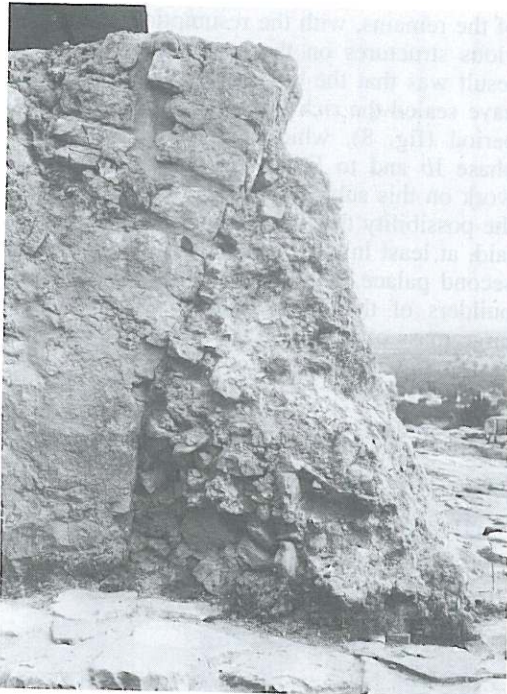
Fig. 4. In the background, the concrete filling corresponding to «guardroom» LVII and to the small staircase to its east (from Levi, *Festòs*, fig. 82; neg. 14578).

Levi's successive excavation of various rooms in the area beyond the Phaistos palace building and of the large Kamilari tomb permitted the recovery of rich and homogeneous pottery complexes which, quite often in stratigraphic succession, confirmed the lines of the stylistic development which he had proposed and which he considered further evidence of the architectonic phases in the palace. Furthermore, the works in one of the areas of the settlement during the recent years of the excavation permitted the determination of a moment of ceramic transition between phases *Ia* and *Ib*. Levi also found deposits of phase III pottery which filled up the stratigraphic gap which had existed in the sequence of the rooms of the palace. However, the scarcity of phase II pottery remained unchanged.

As for what caused the various destructions, Levi, in a way conditioned by the idea of the successive fillings with concrete, explicitly proposed the solution of recurrent earthquakes. In the final publication of the excavation's

data, the problem concerning the destruction of the entire palace quarter is tackled with general statements that do not always refer to specific rooms. Levi only noted, for example, several unidentified walls leaning forward (fig. 5) and others that appeared to be «distaccati, nella loro parte alta dal muro col quale formavano squadra» (detached on the upper part from the wall with which they formed a right angle). The holes and the impressions of the numerous wooden beams placed on the internal part of the walls in the various phases (fig. 6), which are still easy to distinguish, were thus considered by him as direct evidence of an anti-seismic construction technique. He also believed that the numerous traces of burnt wood and ash were related indirectly to the earthquakes: the lamps kept in these ill-lit rooms caused the burning of the furnishings and the wooden frameworks of the rooms.

A quite different reconstruction of the architectonic facts had been proposed in 1961 (but recently confirmed) by Fiandra, her having



been for quite a few years the architect of the excavation. Her four «periodi struttivi» correspond only nominally to Levi's phases Ia, Ib, II and III; and it is a genuine misfortune that there was not, in due time, a closer collaboration between the field director and one of the most careful and diligent collaborators, since a lot of the data is now difficult to verify.

According to Fiandra, the time of the building's greatest splendor was represented by the 2nd construction period. Already in the 3rd period a partial alteration of the complex had begun, including additional constructions. In the 4th period the palace no longer existed as a «concelto architettonico unitario». The various construction episodes were for her precisely

Fig. 5. The western wall of atrium LVI (which leans forward towards Court LXX), with concrete filling remains (from Levi, *Festòs*, fig. 15; neg. 13463).

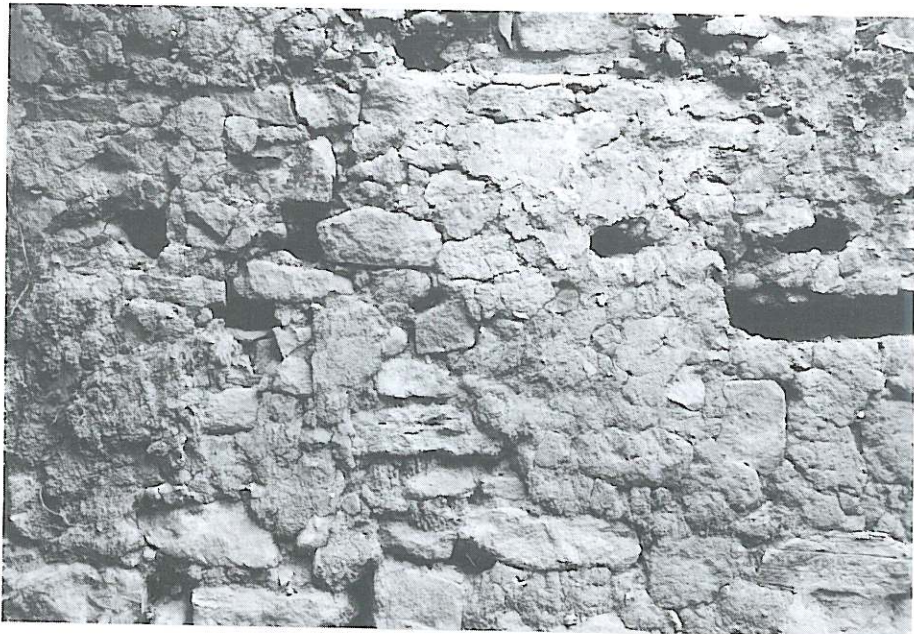


Fig. 6. Detail of the northern wall of room IL, with wooden beam slots placed inside the walls (*cf.* Levi, *Festòs*, fig. 287; neg. 7687).

confirmed by the diversity (even in the colour) of the mortar and of the plaster, and by the results of chemical analysis of some samples that she submitted at that time. One fundamental difference between Fiandra and Levi (see sections of figs. 7 and 8) was that she affirmed that the protopalatial palace had only been filled with concrete once, after the destruction of the 3rd period by the rebuilders of the 4th period. With this idea Warren seems now to agree. The collapse and ruins of the first two periods would have involved a simple removal

of the remains, with the resumption of the previous structures on the same floor level. The result was that the only concrete filling would have sealed the rich pottery context of the 2nd period (fig. 8), which corresponds to Levi's phase 1b and to Evans' MM IIB. In her last work on this subject, Fiandra does not exclude the possibility that the concrete may have been laid, at least in part, by the constructors of the second palace, rather than by the protopalatial builders of the 4th period. However, such a large mass of filling on the western side of the

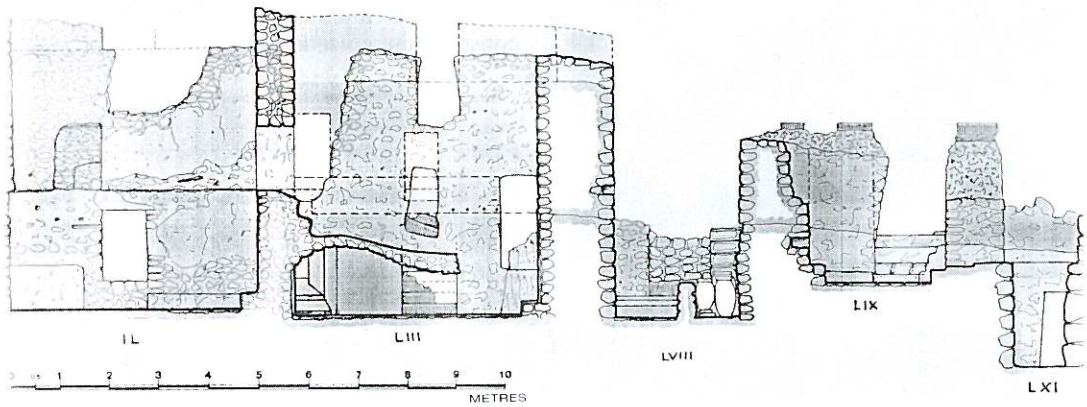


Fig. 7. N-S section through rooms IL, LIII, LVIII, LIX (from Levi, *Festòs*, pl. G).

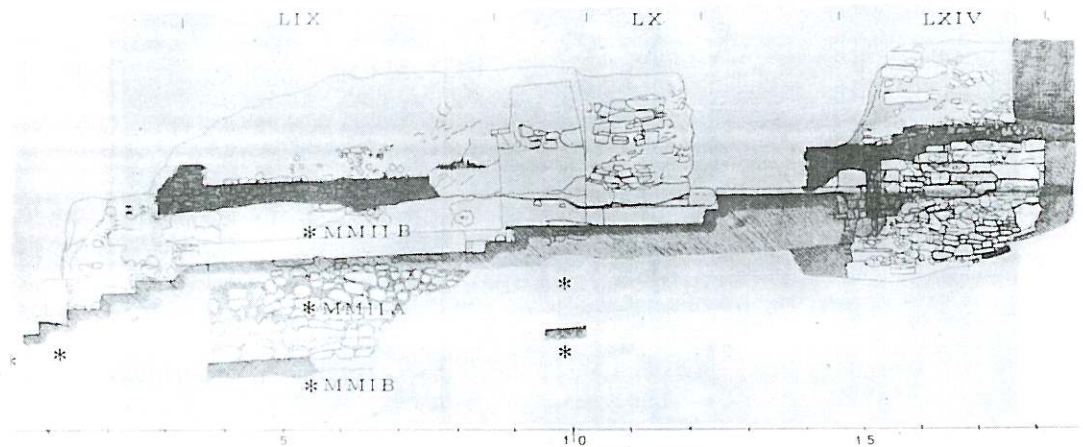


Fig. 8. E-W section through rooms LIX, LX and LXIV (from Fiandra, 1980, pl. 27).



Fig. 9. Detail of a broken orthostate of the façade, corresponding to room LXI (from Levi, *Festòs*, fig. 22; neg. 17610).

boundary wall of the second palace, probably would be, if one thinks of the new building's smaller size, difficult to justify. Apart from this last hypothesis, it seems that the connection proposed by Fiandra between her constructive periods and Levi's phases, with a 3rd period related to the palace's last phase, and a 4th one (totally disconnected from a unitary architectural logic), could be confirmed by the chronological succession of the three paved ramps, assigned by the excavator respectively to phase Ia, to Ib and to II (having been used in the 3rd phase, as well).

When it came to the causes of the destructions within the palace, Fiandra believed in an earthquake at the end of the 2nd construction period. As proof of this she referred to some types of fractures (defined at 45°), that may be seen, for example, in the façade with orthostates (fig. 9) and she also referred to cracks, the so-called X-shaped ones. As for the destructions at the end of the 3rd period she proposed a fire (that took place in winter time, because of the presence of ash in the braziers!)

without, however, excluding, in at least two of her three specific works, the possibility of one concomitant earthquake (I quote: «the fire... it is not known if it was preceded by an earthquake»). If we just accept the interpretation given by Fiandra of the concrete filling, then we can assume a seismic episode even for the destructions of the 3rd period. It seems to me improbable that after the earthquake at the end of the 2nd period the seismic precautions would have been limited to the use of more consistent mortar or of wood widely employed in the walls and that only after the fire at the end of the 3rd period had so basic an anti-seismic solution as the concrete filling been arrived at. And it would therefore be strange that such a radical choice had been made when it was not intended, in the 4th period, to completely rebuild the palace as an organic architectural unit.

The idea of a single filling for the protopalatial age would agree, in theory, with the hypothesis that was proposed by both Zois and Platon, that the various levels of the excavated

structures belonged to three different floors of one construction, instead of the three palaces in succession. In this case, with only one concrete episode, it would not be difficult to explain how a couple of vases, inside rooms LIV and XXVII-XXVIII, have been restored with fragments from various levels (which correspond, as far as the excavator is concerned, to different fillings). But Levi decidedly rejected this hypothesis of only one building. Many times he denied that the concrete, which he himself had removed, could have been laid in one episode and from a third floor level, because of the condition it had been found in. Carinci has recently returned to the question of the existence of various fillings of *astraki* (and not only in the palace's S.W. quarter). That the pottery of the so-called phase III may argue for at least two episodes of filling, does not contradict Fiandra's hypothesis about the concrete at the end of the 3rd period, or about that of the 4th period. The problem (in particular for the two vases already mentioned) is to establish (and I am not going to be the one to do so!) how much a seismic episode may damage or upset one or more previous concrete fillings.

The substantial Levi-Fiandra disagreement (more insidious as it involves two protagonists of the excavation) justifies a suspension of any judgement on these various problems. A new examination, certainly of the data in the notebooks, but mainly of the structures and of the remaining portions of *astraki* (with the expertise of different types of scholars), may permit us to overcome of this impasse; a verification of the analyses of the mortar, plaster and concrete also seems to be necessary. These analyses, if confirmed, would provide us with the solution. In the meantime, even the number of palace reconstructions may be a topic for discussion (as well as how extensive they were). One may ask (in the case that the only filling proposed by Fiandra is to be placed at the end of the 4th period), if of the two highest levels found by Levi (his II and III phases), only the last ones represent two floors of only one building. Even in such a problematic context, we may still exclude that the first palace was only one. As for our assumption, it would be

enough to underline – and I fully agree with Levi on this – that the destruction's cause for Fiandra's second period, but even for the 3rd and even more for the 4th one (as I am going to underline shortly) had been a seismic one. The archaeological evidence because of simple abandonment or because of ruins to be attributed to war-like factors or natural disasters (such as floods), would have therefore had a quite different result. I would also propose to exclude episodes of the hill's landslide, given the immediate reconstruction in the same areas and with the same planimetries.

Independently of the problems referred to above, all of the available data from Phaistos up to the MM IIB destruction (corresponding to the end of the 3rd Fiandra period and to Levi's II phase), of approximately 1700 B.C., give us the image of an important power centre, capital of a «kingdom» which tradition associated with the name of Rhadamanthus, brother of Minos. The Phaistos oligarchies are characterised by, among other things, the early invention of the Linear A writing system, this being an essential means of control of the storing of goods and victuals. In the same protopalatial age, the amphorae made at Phaistos and found at Mallia and Knossos, probably were containers of oil from the Messarà plain, and testify to the agricultural vocation of the territory controlled from our palace. The lack of imported hand-made products, as well as the great vivacity of the pottery workshops (pottery is the typical local activity), indicate, on the other hand, the substantial autarchy of the Phaistos «kingdom». The nature of the Knossos and Mallia finds show, yet, for the same age, a very different situation with notable connections with overseas areas. It therefore comes as a logical result to assume, as far as Middle Minoan Crete is concerned, the co-existence of various power centres, differently characterised from the point of view of economic activities.

A specific subject deserves, at this point, to be brought up, the so-called protopalatial phase III, that even in Fiandra's reconstruction appears, because of the scantness of data, completely evanescent: an undoubtedly unfortunate

circumstance, as such a period should be decisive in the centre's history. The recent, clear analysis by Carinci has permitted the documentation of an attempt at the palace's immediate reconstruction (starting from the northern wing, perhaps) after the destruction in 1700 B.C., an attempt of short duration, never brought to an end. The deposit under the floor of room 50 and the one in the area of room 18, both with MM III pottery, would respectively be evidence of the start and end of this architectural phase, in which the big house at the south of the ramp (rooms LXXXVI-XCIII and XCVI) must also be included. The destruction stratum of this house represents the most explicit archaeological indicator of the failure of the attempt to reconstruct the palace where the traces of destruction (even with fire remains) related to phase III are much less evident. Some palatial functions, in the brief time of its reconstruction, would probably have been accomplished in the northern wing, where the building's complex 101-104 was located. In these rooms (one of which gave us the famous disk), there were compartments made of bricks, perhaps used for archives, in spite of the sudden scarcity (relative to the previous phase) of administrative documents. With the end of the so-called phase III, in conclusion, «a break in the building activities and a change in the project» would have taken place. The original vitality, the economic effort and the will to react to the previous destruction (represented eloquently in the Fiandra hypothesis by the concrete filling) would have been blocked more or less quickly, marking the beginning of a critical situation. We would also like to verify the hypothesis that depopulation at this time was a fact.

The comparison between the pottery deposits from MM III in the various centres of the island has permitted Warren to assign the material from Phaistos to the same destruction stratum as that of Anemospilia and of the *Central Hillside House* of Kommos; the remarks by Carinci permit us to recall also the four trials on the Knossos Acropolis, all four of which must be considered contemporary. Such a moment, that the British Scholar already believed

to be a transition to LM IA, is now defined by him as «Later MM III». This is not the place to underline that even the most recent proposal of my friend Warren would create a *hiatus* in the Phaistos sequence, corresponding to Evans' MM IIIA: the materials of the so-called Levi phase III must be, in fact, as it appears from the stratigraphy in the area of the house to the south of the ramp, immediately successive to the MM IIB pottery. It is therefore probable that this so-called phase III represents something of an initial stage (but not late or final) of MM III. It is still more important for the two complexes considered to be contemporary, that is the one at Kommos and the one at Anemospilia, that the destructions of which the excavators (and now even Warren himself) have explicitly attributed to an earthquake. The case of the sanctuary on the Youktas slopes may be considered emblematic: think of the general collapse of the walls and furthermore of the plastic evidence of the four human victims (one of whom, according to Sakellarakis, was sacrificed just before the destruction, probably while trying to appease nature's powers that had broken out with previous seismic shocks). Kommos and Anemospilia being situated at the two extremes of the island's central part, make inevitable the hypothesis that even the destruction at Phaistos of the so-called phase III is to be attributed to a seismic event. An unexpected and indirect confirmation comes from Haghia Triada where last summer we isolated (and only partly excavated) a great MM III pottery damp (in the M/4 trench of the new «Settore N.E.»), undoubtedly caused by a vast clean up of the destroyed buildings in the settlement area. But the most significant datum in this centre is that the foundation deposit of the main building, the so-called Villa Reale, dates exactly to a not very advanced stage of MM III, immediately after the destruction of the so-called Phaistos phase III, and therefore was perhaps the result of the unsuccessful attempt to rebuild the palace. The seismic event must have brought an end to this attempt and should be set, according to the recently proposed chronologies for the pottery phases, in about the middle of the XVII century B.C., at a time

dangerously close to the one that sophisticated new investigative methods propose for the eruption of Thera. But on the floors buried by volcanic material there was pottery already of LM IA. Contemporary to that catastrophe could perhaps be the successive destructions of the advanced LM IA on Crete. If the new chronological proposals concerning the eruption are confirmed, it may be necessary to back-date the MM III destruction as well as to limit to only a few decades the duration of the so-called Phaistos protopalatial phase III: this would fit better in a confusing transitional moment.

With such a moment's end, a radical change, from the architectonic point of view, characterizes the three Messarà neighbouring centres: the apparent cessation of construction works at Phaistos contrasts with the monumental Kommos structures and with the so-called Villa Reale of Haghia Triada. In the past, it has been stressed elsewhere by me how the bureaucratic-administrative functions, exercised by the Phaistos first palace, then passed to the so-called Villa Reale. A series of data proves furthermore the presence at Haghia Triada of products as well as of architectonic and stylistic influences (in the frescoes, in the pottery and in the famous stone vases with relief decoration scenes) from Knossos workshops, which permit us to guess at a kind of control by this last centre in the Messarà plain. A new complete palatial structure was finally to rise at Phaistos when LM IA pottery was in use (already in the XVI century B.C.), maybe after one more seismic episode. But this building was a smaller version of the previous palace in size and function, while the economic and bureaucratic superiority of the neighbouring Haghia Triada will be evident even in the new phase.

Finally, it remains for me to return to the title and hastily express a hypothesis in spite of the remote age it refers to and the uncertainties of the archaeological context. The Knossos leadership in the island's entire central part during the age of the second palaces, certainly favoured by a more dynamic economic structure than that in the Messarà plain, could initially manifest itself also in the different capac-

ity of the capital of the Phaistos «kingdom», to react to the 1700 B.C. seismic effects and to be subsequently completed after the second earthquake of the middle(?) of the XVII century B.C.

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For the most recent studies on geomorphology, with particular attention to the variations of the coastal lines as well as to their relations to the seismic phenomena, see *Aerial Atlas of Ancient Crete* cit., p. 247.